UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/967,058	09/28/2001	Sarah Kate Wilson	15685P120	4908

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EXAMINER
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ART UNIT	PAPER NUMBER
2643	

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/967,058	WILSON ET AL.
	Examiner	Art Unit	
	Thai Vu	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1, 4-5 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by

Yu (U.S. Pat #:6,047,186, hereinafter "Yu").

Regarding claim 1, Yu teaches a method comprising:

measuring one or more performance characteristics associated with each of at

least a subset of a plurality of targets in a wireless communication system (i.e. a sub

set of targets is formed by the driver and the destination user, column 8, lines 43-52);

and

selectively building one or more clusters, each cluster including one or more

target(s) (i.e. sector) and which share wireless communication channel(s), based at

least in part on the performance characteristics (column 4, line 62-column 5, line 44).

Regarding claim 4, Yu further teaches limitations of the claim in column 10, lines

7- 38 and column 15, lines 30-60.

Regarding claim 5, Yu further teaches limitations of the claim in column 10, lines

7-38 and column 15, lines 30-60.

Regarding claim 10, Yu further teaches the limitations of the claim in FIG. 11 and

column 18, lines 27-51.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yu (U.S.

Pat #:6,047,186) in view of He (U.S. Pat #: 6,330,429, hereinafter "He").

Regarding claim 2, Yu teaches all limitations as claimed above and the

performance characteristics include one or more of a signal to noise ratio (SNR) but

fails to clearly teach a signal to interference and noise ratio (SINR), a received signal

strength indication (RSSI), a bit-error rate (BER) and/or a frame-error rate (FER).

However, He teaches such limitations in column 3, lines 3-27 for the purpose of

providing more signal parameters.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to incorporate the use of a signal to interference and noise

ratio (SINR), a received signal strength indication (RSSI), a bit-error rate (BER) and/or a

frame-error rate (FER), as taught by He, in view of Yu, in order to provide more signal

parameters thus improve the method of calculating signal interference.

5.   Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yu (U.S.

Pat #:6,047,186) in view of Suzuki et al. (U.S. Pat #: 5,903,843 hereinafter "Suzuki").

Regarding claim 3, Yu teaches all subject matter as claimed above, except for

each cluster comprising of up to M targets and each communication channel

accommodates up to N targets, and step of assigning at least a subset of up to N

targets to a first communication channel resource; and selectively assigning subset(s) of

a remaining (M-N) targets to share additional communication channel resource(s) within

the cluster. However, Suzuki teaches such limitations in the abstract, note FIG. 16 (if

the system decides that traffic density is too high, i.e. the channel is used for providing

communication links for N targets, the mobile unit will be transferred additional available

channel) for the purpose structuring a radio communication system which can cope with

the condition of the traffic density of the neighborhood.

Therefore, it would have been obvious to one of skill in the art at the time the

invention was made to incorporate the use of each cluster comprised of up to M targets

and each communication channel accommodates up to N targets, and to step of

assigning at least a subset of up to N targets to a first communication channel resource;

and selectively assigning subset(s) of a remaining (M-N) targets to share additional

communication channel resource(s) within the cluster, as taught by Suzuki, in view of

Yu, in order to control and manage communication channels in said radio

communication system.

6.   Claims 6, 11-12, 20-27 and 30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Yu (U.S. Pat #:6,047,186) in view of Golemon et al. (U.S. Pat #:

6,018,643, hereinafter "Golemon").

Regarding claim 6, Yu teaches all subject matter as claimed above except for the

new weight being as a least-squares weight associated with the identified target.

However, Golemon teaches the limitations of the claim in column 8, lines 37-49 for the

purpose of controlling the adaptive antenna.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to incorporate the use of the new weight being as a least-

squares weight associated with the identified target, as taught by Golemon, in view of

Yu, in order to improve the use of adaptive antennas, and boost network capacity.

Regarding claim 11, Yu teaches a communication station comprising:

wireless communication resources (e.g. FIG 2. item 111); and

a communication agent (i.e. FIG. 11 Box 1149 controlled by Control Program

1151 stored in box 1150), coupled with the wireless communication resources, to

populate cluster(s) with one or more target(s) based, at least in part, on one or more

estimated performance characteristics associated with the targets (column 4, line 62 –

column 5, line 43)

to develop a weighting value for at least a subset of the populated clusters

based, at least in part, on the developed weighting value (i.e. interference weight,

column 10, lines 8-25).

It should be noticed that Yu fails to clearly teach the step of generating transmission beam. However, Golemon teaches such limitations in column 8, lines 37-49 for a purpose of controlling the adaptive antenna.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of generating transmission beam, as taught by Golemon, in view of Yu, in order to improve the use of adaptive antennas, boosting network capacity.

Regarding claim 12, Yu further teaches limitations of the claim in column 1, lines 31-33.

Regarding claim 20, Yu further teaches limitations of the claim in FIG. 11 and column 18, lines 27-51.

Regarding claim 21, Yu teaches in a wireless communication system implementing general packet radio services (GPRS), a method comprising:

populating cluster(s) with one or more target(s) based, at least in part, on measured performance characteristics of each of the one or more target(s) (column 5, lines 7-44); and

developing a weighting value for at least a subset of the populated clusters based, at least in part, on the cluster spatial signature (i.e. interference weight W(i,j), column 10, lines 7- 38).

It should be noticed that Yu fails to clearly teach the step of generating transmission beam. However, Golemon teaches such limitations in column 8, lines 37-49 for a purpose of controlling the adaptive antenna.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of generating transmission beam in order to improve the use of adaptive antennas, boosting network capacity, as taught by Golemon, in view of Yu, in order to improve the use of adaptive antennas, boosting network capacity.

Regarding claim 22, Golemon further teaches the limitations of the claim in column 8, lines 37-49.

Regarding claim 23, Yu teaches such limitations in column 2, lines 5-20.

Regarding claim 24, Yu teaches such limitations in column 8, lines 43-52; and column 4, line 62- column 5, line 44.

Regarding claim 25, Yu teaches such limitations in column 10, lines 7- 38 and column 15, lines 30-60.

Regarding claim 26, Yu teaches such limitations in column 10, lines 7- 38 and column 15, lines 30-60.

Regarding claim 27, Golemon further teaches the limitations of the claim in column 8, lines 37-49.

Regarding claim 30, Yu further teaches the limitations of the claim in FIG. 11 and column 18, lines 27-51.

7.   Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu (U.S. Pat #:6,047,186) in view of Weideman et al. (U.S. Pat #: 5,875,180, hereinafter "Weideman").

Regarding claim 7, Yu teaches all limitations as claimed above.

Yu further the step of estimating the performance characteristics of each of the target(s) within each of the cluster(s) using the generated new weight for each of the cluster(s) (column 15, lines 30-60);

It should be noticed that Yu fails to clearly teach the step of regrouping targets according to the weights that provide the best SINR for each of the targets. However, Wiedeman teaches such limitations in column 5, lines 31-50 for a purpose of reducing transmission power.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to cooperate the use of regrouping targets according to the weights that provide the best SINR for each of the targets, as taught by Weideman, in view Yu, in order to provide a desired level of service quality.

Regarding claim 8, Yu further teaches limitations of the claim in column 8, lines 43-52 and column 4, line 62- column 5, line 44. Wiedeman also teaches such limitations in column 5, lines 31-50.

Regarding claim 9, Yu further teaches limitations of the claim in column 8 line 43-52 and column 4, line 62- column 5, line 44. Wiedeman also teaches such limitations in column 2, line 59-column 3, line 5 and column 5, lines 31-50.

8.   Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu (U.S. Pat #:6,047,186) in view of Golemon (U.S. Pat #: 6,018,643), as applied to claim 11 above, and further in view of He (U.S. Pat #: 6,330,429).

Regarding claim 13, Yu further teaches to selectively build one or more clusters, each cluster including one or more target(s) and sharing a wireless communication channel, based at least in part on the performance characteristics (column 5, lines 7-44).

It should be noticed that Yu and Goleman, in combination fails to clearly teach the communication agent comprising: a clustering engine, to measure one or more performance characteristics associated for each of at least a subset of a plurality of targets in a wireless communication system. However, He teaches such limitations in FIG. 1 block S10 and column 3, lines 3-27 for the purpose of providing more signal parameters.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the communication agent comprising: a clustering engine, to measure one or more performance characteristics associated for each of at least a subset of a plurality of targets in a wireless communication system, as taught by He, into view of Yu and Goleman, in order to improve the method of calculating signal interference.

Regarding claim 14, Yu further teaches limitations of the claim in column 10, lines 8-10, column 15, lines 30-60 and column 10, lines 7- 38.

Regarding claim 15, Yu further teaches limitations of the claim in column 10, lines 7-38.

Regarding claim 16, Golemon further teaches the limitations of the claim in column 8, lines 37-49.

9.   Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu

(U.S. Pat #:6,047,186) in view of Golemon (U.S. Pat #: 6,018,643) and He (U.S. Pat #:

6,330,429) as applied to claims 11, 13-15 above, and further in view of Weideman (U.S.

Pat #: 5,875,180).

Regarding claim 17, Yu further teaches clustering engine estimates the

performance characteristics of each of the target(s) within each of the cluster(s) using

the generated new weight for each of the cluster(s) (column 15, lines 30-60).

It should be noticed that Yu, Goleman and He, in combination, fails to clearly

teach the feature of regrouping targets according to the weights that provide the best

SINR for each of the targets. However, Wiedeman teaches such limitations in column

5, lines 31-50 for a purpose of reducing transmission power.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to incorporate the use of regrouping targets according to

the weights that provide the best SINR for each of the targets, as taught by Wiedeman,

into view of Yu, Goleman and He, in order to yet provide a desired level of service

quality.

Regarding claim 18, Wiedeman further teaches limitations of the claim in column

5, lines 31-50.

Regarding claim 19, Golemon further teaches such limitations in column 8, lines

37-49.

10.   Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu

(U.S. Pat #:6,047,186) in view of Golemon (U.S. Pat #: 6,018,643) as applied to claims

22, 24, 25 and 26 above, and further in view of Weideman (U.S. Pat #: 5,875,180).

Regarding claim 28, Yu teaches a method further comprising:

estimating the performance characteristics of each of the target(s) within each of

the cluster(s) using the generated new weight for each of the cluster(s) (column 15,

lines 30-60);

It should be noticed that Yu and Goleman, in combination, fails to clearly teach

the feature of regrouping targets according to the weights that provide the best SINR for

each of the targets. However, Wiedeman teaches such limitations in column 5, lines

31-50 for a purpose of reducing transmission power.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to incorporate the use of regrouping targets according to

the weights that provide the best SINR, as taught by Wiedeman, into view of Yu, and

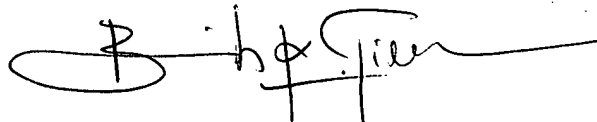Goleman, in order to provide a desired level of service quality.

Regarding claim 29, Yu further teaches limitations of the claim in column 8, lines

43-52 and column 4 line 62- column 5 line 44. Wiedeman also teaches such limitations

in column 5, lines 31-50.

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Thai Vu whose telephone number is 703-305-3417. The

examiner can normally be reached on 9:00AM-6:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Curtis Kuntz can be reached on 703-305-3900. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Thai Vu
Examiner
Art Unit 2643

BINH TIEU
PRIMARY EXAMINER